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- ☐ 1. [6268481](#). 22 Jul 97; 31 Jul 01. Covalently coupled troponin complexes. Morjana; Nihmat. 530/350; 436/811 436/86 530/841. A61K031/00.
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- ☐ 2. [6248869](#). 29 May 97; 19 Jun 01. Troponin I forms and use of the same. Morjana; Nihmat A., et al. 435/7.1; 436/63 436/86 530/350. C07K013/00.
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- ☐ 3. [6136339](#). 21 Aug 98; 24 Oct 00. Food supplements and methods comprising lipoic acid and creatine. Gardiner; Paul T.. 424/439; 514/440 514/461. A61K047/00.
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- ☐ 7. [5290519](#). 12 Feb 93; 01 Mar 94. Test for the rapid evaluation of ischemic states and kit. Bar-Or; David, et al. 422/61; 252/183.13 422/55 422/58 422/82.05 435/4 435/810 436/903 436/904. G01N021/78 G01N033/68.
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- ☐ 8. [5227307](#). 26 Jul 91; 13 Jul 93. Test for the rapid evaluation of ischemic state. Bar-Or; David, et al. 436/63; 435/16 435/17 435/26 436/171 436/74 436/86 436/87. G01N033/00 G01N021/00.
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File: USPT

Jul 13, 1993

US-PAT-NO: 5227307DOCUMENT-IDENTIFIER: US 5227307 A

TITLE: Test for the rapid evaluation of ischemic state

DATE-ISSUED: July 13, 1993

## INVENTOR-INFORMATION:

| NAME            | CITY      | STATE | ZIP CODE | COUNTRY |
|-----------------|-----------|-------|----------|---------|
| Bar-Or; David   | Englewood | CO    |          |         |
| Solomons; Clive | Denver    | CO    |          |         |

US-CL-CURRENT: 436/63; 435/16, 435/17, 435/26, 436/171, 436/74, 436/86, 436/87

## CLAIMS:

What is new and desired to be secured by Letters Patent of the United States is:

1. A method of detecting the occurrence or non-occurrence of an ischemic event in a patient, comprising the steps of:

(a) contacting a serum, plasma, fluid or tissue sample of said patient with metal ions capable of binding to thiol groups in said sample, to form a mixture containing sample bound metal ions and non-sample bound metal ions,

(b) directly detecting the amount of non-sample bound metal ions by atomic absorption or atomic emission spectroscopy to determine the amount of said thiol groups in the sample, and

(c) correlating the amount of thiol groups in the sample to determine the occurrence or non-occurrence of an ischemic event.

2. The method of claim 1, wherein said sample is serum or plasma.

3. The method of claim 1, wherein said metal ion is a transition metal ion of Groups 1b-7b or 8 of the Periodic Table of the elements.

4. The method of claim 1, wherein said metal ion is selected from the group consisting of V, As, Co, Sb, Cr, Mo, Mn, Ba, Zn, Ni, Hg, Cd, Fe, Pb, Au and Ag.

5. The method of claim 1, wherein said metal ion is cobalt.

6. A method of detecting the occurrence or non-occurrence of an ischemic event in a patient, comprising the steps of:

(a) contacting a serum, plasma, fluid or tissue sample of said patient with metal ions capable of binding to thiol groups in said sample, said metal ions being selected from the groups consisting of V, As, Co, Sb, Cr, Mo, Mn, Ba, Zn, Ni, Hg, Cd, Fe, Pb, Au and Ag, to form a mixture containing sample bound metal ions and non-sample bound metal ions.

(b) contacting said mixture with an aqueous color forming compound solution to form a colored solution,

(c) determining the color intensity of said colored solution to detect the

presence of non-sample bound metal ions and detect the amount of said thiol groups in the sample, and

(d) correlating the amount of thiol groups in the sample to determine the occurrence or non-occurrence of an ischemic event,

wherein said color forming compound is a C.sub.2-6 alkyl thioalcohol, C.sub.2-6 alkyl thioamine, C.sub.2-10 alkyl thiomonocarboxylic acid, C.sub.2-10 alkyl thiodicarboxylic acid, C.sub.2-10 alkyl dithiodicarboxylic acid, di-Ch.sub.1-6 alkyl dithiocarbamic acid, thiol-containing amino acid, thiol-containing peptide, thiol-containing enzyme, metal hydroxide ammonium hydroxide, metal cyanide or ammonium thiocyanate.

7. The method of claim 6, further comprising diluting said colored solution with an aqueous solution isosmotic with blood serum or plasma prior to said detecting step.

8. The method of claim 6, wherein said color forming compound is selected from the group consisting of dithiothreitol, cysteine or glutathione.

9. The method of claim 8, wherein said color forming compound is dithiothreitol.

10. The method of claim 6, wherein said detecting step is conducted in a pH range of 5-10.5.

11. The method of claim 6, wherein said detecting step is conducted using a spectrophotometer.

12. The method of claim 6, wherein said sample is serum or plasma.

13. The method of claim 6, wherein said metal ion is cobalt.